

Receiving Report

Date: 11/01/04

Batch No: M116533

Supplier: SABRE

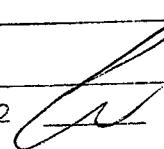
Dart P/O: 13708

Packing Slip: Yes No
 Invoice: Yes No
 Receipt: Cash Cr

Release Note Attached: Yes No N/A
 Waybill Attached: Yes No N/A
 Shipment Complete: Yes No N/A
 QC6 Inspection ✓ N/A
 Work Order ✓ N/A

Discrepancies

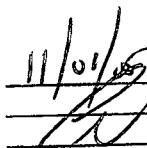
Part Number	Description	Quantity Ordered	Quantity Received	Quantity Returned	Quantity Short	Comments

Initials of receiver (if shipment OK) Level 12 

Production/Admin:

Date 11/01/04

Received/Costing

Initial 

Location

Purchase Order Receipt Listing

Page 1 of 1

Wednesday, January 05, 2011 7:06:15 AM

All amounts are calculated in domestic currency.

All Vendors PO ID PO13158 Receipt Dates from 1/5/2011 to 1/5/2011 All Line Item Types

All Item ID/GL/WOs All Rec. Employees All Currencies

Grouped by Vendor ID

Purchase Order ID/ Curr Type	Line Nbr/ Insp Req	Project ID	Reference/ Description/ Cert Std	PO U/M / Stock U/M	Required Date Required Qty	Recv Date/ Recv Emp	Recv Qty (PO U/M)	Cost Per Unit/ Recv Value	Inspected Qty/ Rejected Qty (PO U/M)	MRB Qty/ MRB Reject Qty	Book Amt
PO13158	1	VC-GEP001	SABIC Polymershapes	MPTFES2.000 f	12/30/2010	1/5/2011	14.0000	\$112.23	0.0000	0	\$1,571.22
CAD	No		Polytetrafluoroethylene Molded Sheet	116533		14.0000	DESJ02	\$1,571.22	0.0000	0	

and 1/5/105

Total Received Quantity:	14.0000
Total Qty to Inspect (PO U/M):	0.0000
Total Reject Quantity:	0.0000
Total Receipt Value:	\$1,571.22
Total Balance Due Quantity:	0.0000

SABIC Polymershapes
1250 Old Innes Rd., Unit 519

Page: 1

Ottawa, Ontario K1B 5L3
PST 85637 2750 TR0001
PHONE: (613)745-7043 FAX: (613)745-4291

SOLD TO: DART AEROSPACE LTD

SHIP TO: DART AEROSPACE LTD

1270 ABERDEEN STREET
HAWKESBURY ON K6A 1K7
Canada

1270 ABERDEEN STREET
HAWKESBURY ON K6A 1K7
Canada
1-613-632-5200

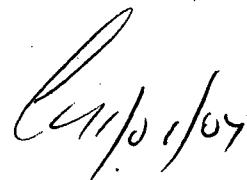
Our Order No	Customer	GST License	PST License	Invoice Terms	Ordered	Shipped	Taken By	RDD
094426	DARAER	CHARGE GST	6112-5207	NBT 30 DAYS	17.12.10		caldwellj	04.01.11
Ship.Doc.No	Salesrep	Customer P.O.#	Shipped Via	P.O.B.	Freight Terms	Inv. No.	Ship Date	
01	93	13158	T S T		COLLECT			30.12.10

Ln#	Location	Ord	B/O	Ship Sku	Product Code	Description	U/Price

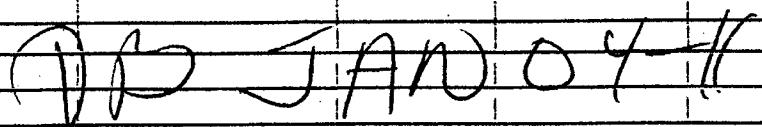
DELIVERIES TO BE DONE BEFORE 4:00 PM , ADVISE SHIPPING CO. *****							

001 7 0 7 EA 94008151 X1100 VIRGIN TEFLON SHEET
2.00 X 2.00 X 24

002 1 0 1 EA 0000005 THANK YOU FOR SELECTING
SABIC POLYMERSHAPES

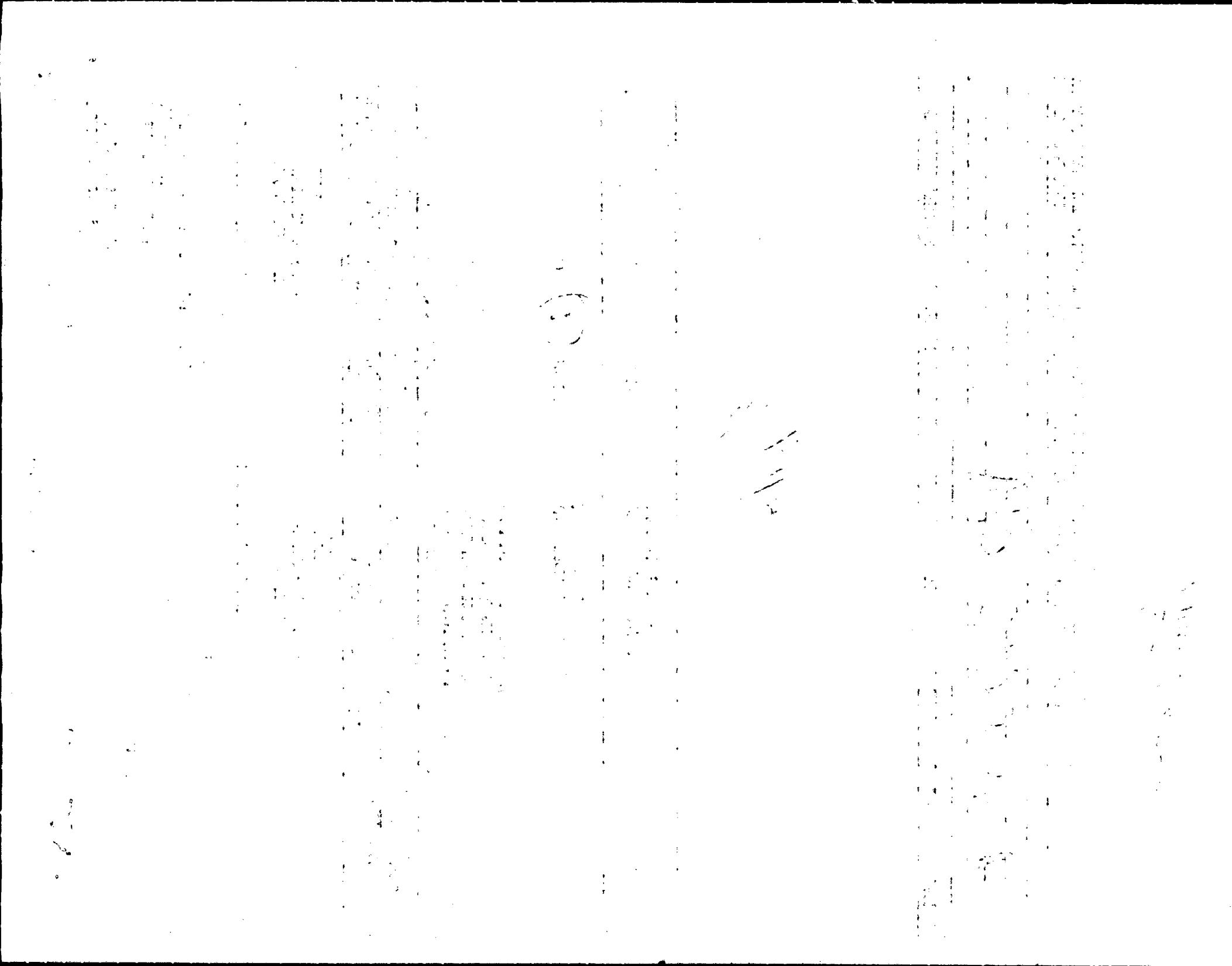


LINE NO.	RECEIVING NO.	PICKED BY	DATE	SHIPPED BY	DATE	VERIFIED	DATE



NO GOODS TO BE RETURNED WITHOUT APPROVAL FROM SABIC. ALL DISCREPANCIES MUST BE REPORTED WITHIN 10 DAYS.
ALL RETURNS MUST HAVE VALID RETURNED GOODS AUTHORIZATION NUMBER CLEARLY MARKED ON ALL PACKAGES.





SABIC
innovative
Plastics



SABIC Polymershapes

1250 OLD INNES RD. 519 OTTAWA,ONT. K1B 5L3
TEL: 613 745 7043 FAX: 613 745 8163

CERTIFICATE OF COMPLIANCE

SOLD TO: DART AEROSPACE

DATE: 12/17/2010

YOUR PURCHASE ORDER : 13158

OUR SHIPPER NO: 094426

LINE ITEM # :1

QUANTITY: 7 PIECES

DESCRIPTION: VIRGIN TEFLON SHEET 2.00" X 2.00" X 24"

THESE PARTS WERE MANUFACTURED IN ACCORDANCE WITH: AMS3667

THIS IS TO CERTIFY THAT THE MATERIAL FINISHES AND FUNCTIONAL REQUIREMENTS
OF THE ABOVE LISTED PARTS ARE IN ACCORDANCE WITH THE REFERENCE
PROCUREMENT SPECIFICATIONS, CONTROL DRAWINGS OR PARTS DESIGNATION AND
LATEST REVISIONS AS REFERENCED ON THE SUBJECT PURCHASE ORDER.

AUTHORIZED REPRESENTATIVE SIGNATURE

A handwritten signature in black ink that reads "Jon Caldwell". The name is written in cursive script, with "Jon" on top and "Caldwell" on the line below it.

JON CALDWELL
BRANCH MANAGER



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID PO13158

Purchase Order Date 12/17/10

PO Print Date 12/17/10

Page Number 1 of 1

Order From : VC-GEP001

SABIC POLYMERSHAPES
9150 AIRPORT ROAD
BRAMPTON, ON L6S 6G1
CA

Contact Name	Buyer	Chantal Lavoie
Vendor Phone	Requisition Nbr	
Vendor Fax	Tax Resale Nbr	10127-2607
Vendor Account Nbr	Terms	Net 30
	Currency	CAD
	FOB	Destination-Collect

Ship To : DART AEROSPACE LTD 1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

FAXED
Cto/12/17

Line Nbr	Reference Revision ID	Description/ Mfg ID	Req Date/ Taxable	Req Qty/ Unit of Measure	Ship Method	Unit Price	Extended Price
1	MPTFES2.000	Polytetrafluoroethylene Molded Sheet	20 12/26/10	14.00	Purolator ground	\$112.2300	\$1,571.22
				Yes	f		

Special Inst: MATERIAL:
POLYTETRAFLUOROETHYLENE (PTFE)
MOLDED SHEET
AS PER AMS 3667
SIZE: 2" X 2" X 24" X 7 PCS = 14 FT
COLOR: WHITE

6/1/01/04
PO Total: \$1,571.22

MATERIAL CERTIFICATION
REQ'D UPON DELIVERY

N CL

No substitution or deviation without
consent.
Certificate of Conformity or Material
Certification required when applicable

Change Nbr: 1

Change Date: 12/17/10

SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL: POLYTETRAFLUOROETHYLENE (PTFE) MOLDED SHEET

SPECIFICATION: AMS3667

PART NUMBER: MPTFES	T.TTT
	THICK

WHERE "T.TTT" = THICKNESS IN INCHES

EG. 1.0" THICK SHEET = MPTFES1.000

REFERENCE ONLY

PRELIMINARY ISSUE

 10.12.16

PA1	NEW/E ISSUE	BY	10.12.16
REV.	DESCRIPTION		DATE
DESIGN		DART AEROSPACE LTD	
DRAWN		HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	
MFG. APPR.		MPTFES	REV. PA1
APPROVED		TITLE	SCALE
DE APPR.		PTFE BAR	NTS
DATE	10.12.16	COPYRIGHT © 2010 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR DISSEMINATED BY ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

TRANSMISSION VERIFICATION REPORT

TIME : 12/17/2010 11:31
NAME
FAX
TEL
SER. # : F9N212739

DATE, TIME	12/17 11:31
FAX NO./NAME	16137454291
DURATION	00:00:18
PAGE(S)	01
RESULT	OK
MODE	STANDARD ECM

L Lacelle

From: Bill Beckett [mailto:bbeckett@dartaero.com]
Sent: December 16, 2010 11:41 AM
To: 'L Lacelle'; 'David Shepherd'
Cc: 'Mike Petsche'; 'Sian Willems'; 'Jean-Luc Menard'
Subject: RE: AW139 Anti-Rotation Block

Giddy-up

white color.

PTFE \$2.00

From: L Lacelle [mailto:llacelle@dartaero.com]
Sent: December 16, 2010 10:39 AM
To: 'Bill Beckett'; 'David Shepherd'
Cc: 'Mike Petsche'; 'Sian Willems'; 'Jean-Luc Menard'
Subject: RE: AW139 Anti-Rotation Block

It will take 7 pcs of the 2" x 2" x 24" PTFE for a total of 1571.22, do I proceed?

LL

141

From: Bill Beckett [mailto:bbeckett@dartaero.com]
Sent: December 16, 2010 9:57 AM
To: 'David Shepherd'; 'L Lacelle'
Cc: 'Mike Petsche'; 'Sian Willems'; 'Jean-Luc Menard'
Subject: FW: AW139 Anti-Rotation Block

MP

David - See Elvin's email below. As discussed, you will assign a Dart P/N for us to make this; could you please issue ASAP. Once I have this I will advise Elvin.

Linda - this is good enough for me to justify ordering the PTFE as per the proper spec. Please get enough material for us to make qty Of 100 plus 10% for potential scrap. As well, please have the new part we got in measured precisely to see how it compares to the drawing received from ERA.

Thanks,

Bill

From: Domingue, Elvin [mailto:edomingue@erahelicopters.com]
Sent: December 16, 2010 9:51 AM
To: Bill Beckett
Cc: Vaughn, Chuck
Subject: RE: AW139 Anti-Rotation Block

Thanks Bill

The Era drawing should be finished today, I will send once complete. I will also get the PO to you sometime today once the new p/n is loaded into the system. We plan to use p/n "139 Anti-Rotational Block"

From: Bill Beckett [mailto:bbeckett@dartaero.com]
Sent: Thursday, December 16, 2010 5:42 AM
To: Domingue, Elvin
Cc: Vaughn, Chuck
Subject: RE: AW139 Anti-Rotation Block

Elvin,

To confirm yesterday's discussion, Dart's price for manufacturing this part (P/N TBD) made from AMS3667D is:
\$180 USD ea FOB Dart

Delivery: Qty 10, 12 working days ARO, balance of 90, 3 weeks ARO.

We will supply a certificate of conformity with shipment.

Our issue with lead-time is material availability which is 6-7 days ARO. We will try to improve.

Best Regards,

Bill

From: Domingue, Elvin [mailto:edomingue@erahelicopters.com]

Sent: December 15, 2010 10:47 AM

To: Bill Beckett

Subject: RE: AW139 Anti-Rotation Block

We will take care of the paperwork through our receiving inspection, we have used 31 ea in the last 24 months.

From: Bill Beckett [mailto:bbeckett@dartaero.com]

Sent: Wednesday, December 15, 2010 5:34 AM

To: Domingue, Elvin

Subject: RE: AW139 Anti-Rotation Block

Dominigue,

Thanks for the speedy response.

Can you answer the question regarding certification please?

Thanks,

Bill

From: Domingue, Elvin [mailto:edomingue@erahelicopters.com]

Sent: December 14, 2010 6:03 PM

To: Bill Beckett

Cc: Vaughn, Chuck; 'Jean-Luc Menard'; 'David Shepherd'

Subject: RE: AW139 Anti-Rotation Block

Reference: Helicopter Part

Special handling/Services: Deliver Weekday

Status: Shipment information sent to FedEx

Tracking number: 794218473875

To track the latest status of your shipment, click on the tracking number above,
or visit us at fedex.com.

From: Bill Beckett [mailto:bbeckett@dartaero.com]

Sent: Tuesday, December 14, 2010 1:06 PM

To: Domingue, Elvin

Cc: Vaughn, Chuck; 'Jean-Luc Menard'; 'David Shepherd'

Subject: RE: AW139 Anti-Rotation Block

Elvin,

The address is correct. POC is Jean-Luc Menard.

BTW, if we make this in exact compliance to drawing, I assume Stu will have no problem approving it for flight? In

cases like this, we would normally get a PDA/PMA certification and then sell it as an approved part. How many of these are you burning through i.e. qty of "x" per year per machine? It sounds as though it would be worthwhile for us to go through an approval process to sell to other AW139 operators.

Thanks,
Bill

From: Domingue, Elvin [mailto:edomingue@erahelicopters.com]
Sent: December 14, 2010 1:41 PM
To: Bill Beckett
Cc: Vaughn, Chuck
Subject: RE: AW139 Anti-Rotation Block

We have 1 new unit available in Alaska, I will ask them to send to you at the address below. Please let me know if the information below is correct or if you have another P.O.C. you prefer I send to.

Attn: Eric Charbonneau
1270 Aberdeen Street
Hawkesbury, Ontario
K6A 1K7 Canada

From: Bill Beckett [mailto:bbeckett@dartaero.com]
Sent: Tuesday, December 14, 2010 12:30 PM
To: Domingue, Elvin
Cc: Vaughn, Chuck
Subject: RE: AW139 Anti-Rotation Block

Elvin,
No problem for us to make these for you. We are checking into material availability and price and will have a quote for you today hopefully.
Do you have access to the solid model? It would help us move ahead more quickly if you do. As well, it would be great if you could send us a part, preferably new.

Bill

From: Domingue, Elvin [mailto:edomingue@erahelicopters.com]
Sent: December 14, 2010 1:14 PM
To: Bill Beckett
Cc: Vaughn, Chuck
Subject: AW139 Anti-Rotation Block

Bill,
Hope all is going well for you all. Please see attached information regarding the blocks. Would like to get 100 ea of these made, need 10 ea quickly (within a week) if possible. I am also adding the MM Ref material and breakdown. Would like to know pricing and availability when you get a chance. Let us know if you have any questions.

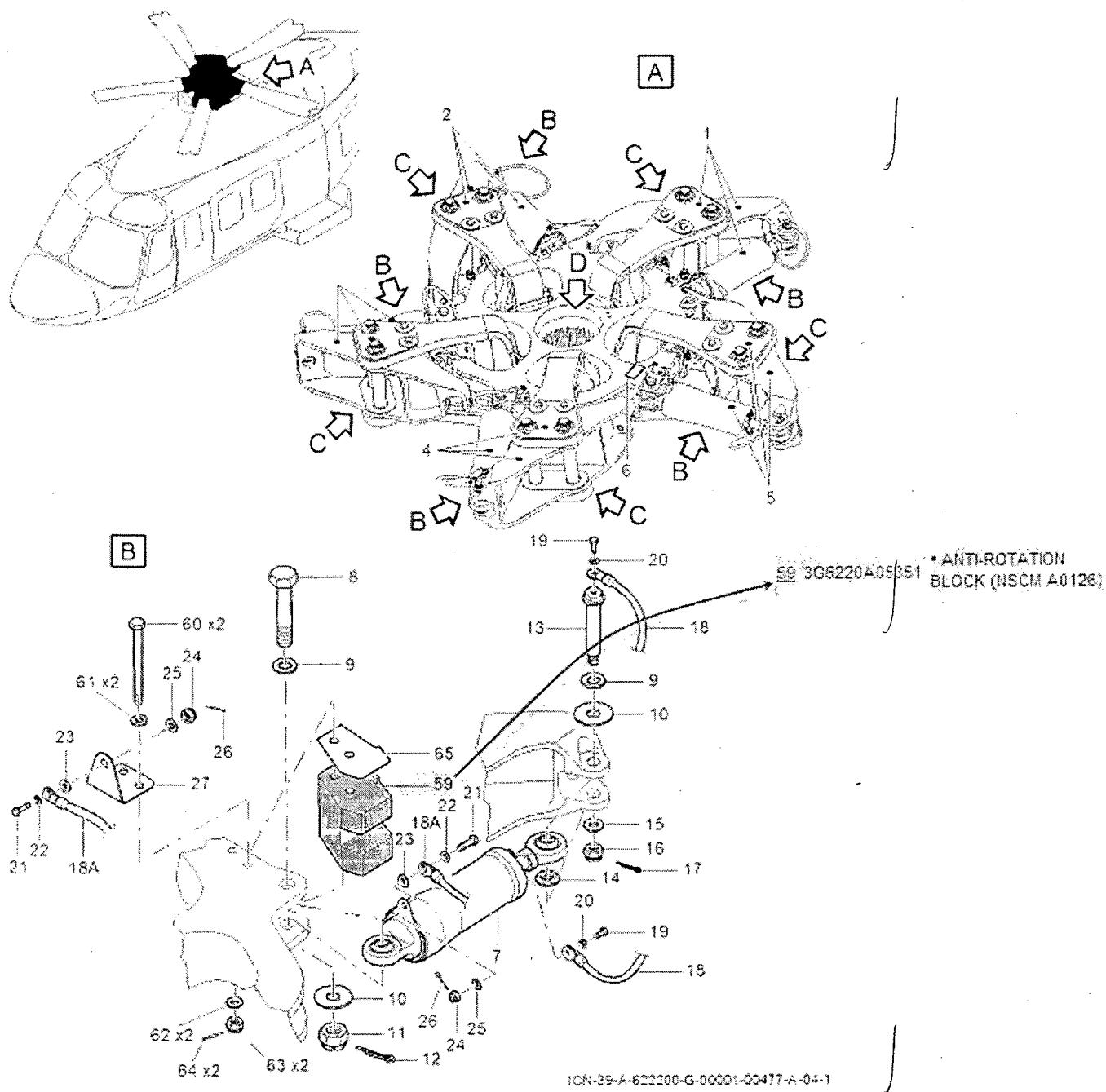
Anti-rotation blocks

The five anti-rotation blocks are installed on the hub.

Each block is attached to the hub with two bolts, four washers and two nuts

A peelable shim is installed on the top side of the block between the hub and the block.

The anti-rotation blocks are made of teflon. They prevent the rotation of the lag damper on the longitudinal axis.



Regards,
Elvin

L Lacelle

From: Jon Caldwell [jon.caldwell@sabic-ip.com]

Sent: December 15, 2010 4:31 PM

To: L Lacelle

Subject: Re: rfq

We will cert it to the AMS3667 spec

Thanks

Jon

1 1/2" each part

On 15 December 2010 16:15, L Lacelle <llacelle@dartaero.com> wrote:

So what does the mat'l you are offering meet as a spec ? The AMS3667D ?

Thx

Linda

15 pcs per 2'

7 pcs of 2" x 2" x 24" log

From: Jon Caldwell [mailto:jon.caldwell@sabic-ip.com]

Sent: December 15, 2010 3:45 PM

To: L Lacelle

Subject: Re: rfq

15 fl. 22

<http://www.enflo.com/>

Go to the page that has the tech info and it is near the bottom.

Thanks

jon

On 15 December 2010 15:11, L Lacelle <llacelle@dartaero.com> wrote:

Thanks Jon,

Now what spec does this meet? I see that AMS3667D is for sheet. Do you have a technical data sheet for the sheet and the bar, so we may compare please?

Thx

Linda

From: Jon Caldwell [mailto:jon.caldwell@sabic-ip.com]
Sent: December 15, 2010 2:47 PM
To: L Lacelle
Cc: darleen.melkert@sabic-ip.com; alexandra.day@sabic-ip.com; Wade Dixon
Subject: Re: rfq

Hello Linda cost per piece 2" x 2" x 24" is 224.46 ea .

lead time is 5 to 7 days.

Thanks

Jon

On 15 December 2010 12:14, L Lacelle <llacelle@dartaero.com> wrote:

Hi Jon, any news on this??

From: L Lacelle [mailto:llacelle@dartaero.com]
Sent: December 14, 2010 3:24 PM
To: 'Jon Caldwell'
Subject: FW: rfq

From: Jean-Luc Menard [mailto:jmenard@dartaero.com]
Sent: December 14, 2010 3:23 PM
To: 'L Lacelle'
Subject: RE: rfq

2" square bar

From: L Lacelle [mailto:llacelle@dartaero.com]
Sent: December 14, 2010 3:17 PM
To: 'Jean-Luc Menard'
Subject: FW: rfq

?

From: Jon Caldwell [mailto:jon.caldwell@sabic-ip.com]
Sent: December 14, 2010 3:04 PM
To: L Lacelle
Subject: Re: rfq

Hi, yes we carry Virgin Sheet. Thin gauge up to .187 is skived and thicker is molded. What thickness do you require ?

Jon

On 14 December 2010 14:53, L Lacelle <llacelle@dartaero.com> wrote:

Hi Jon,

Could you please advise if you carry virgin PTFE in form of sheet (PTFE sheet, molded general purpose grade, AS sintered? If so I would require P & D.

Thank You,

Linda Lacelle

Production Manager

Dart Aerospace Ltd

--
Jon Caldwell
Sabic Polymershapes
Branch Manager

T: 613 745 7043
T: 800 267 1575
F: 613 745 4291
D: *439 7043
E: jon.caldwell@sabic-ip.com

1250 Old Innes Road
Ottawa Ont. K1B 5L3
Canada

Sabic Innovated Plastics

Unless otherwise agreed to in a document signed by both parties, any sale of products by Sabic Polymershapes is made exclusively under Sabic Polymershapes' Standard Terms and Conditions of Sale. Sabic Polymershapes makes no warranty, express or implied, with respect to the performance, suitability, or fitness for intended use of its products in any customer's application. Each customer should determine the suitability of materials for the customer's particular use through appropriate testing and analysis.

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reason to believe that you are not one of the intended
recipients of this e-mail, please notify the sender
immediately by reply e-mail and immediately delete this
e-mail and any of its attachments. Thank you.

L Lacelle

From: Bill Beckett [mailto:bbeckett@dartaero.com]
Sent: December 16, 2010 9:57 AM
To: 'David Shepherd'; 'L Lacelle'
Cc: 'Mike Petsche'; 'Sian Willems'; 'Jean-Luc Menard'
Subject: FW: AW139 Anti-Rotation Block

David - See Elvin's email below. As discussed, you will assign a Dart P/N for us to make this; could you please issue ASAP. Once I have this I will advise Elvin.

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To: Bill Beckett
Cc: Vaughn, Chuck; 'Jean-Luc Menard'; 'David Shepherd'
Subject: RE: AW139 Anti-Rotation Block

Reference: Helicopter Part
Special handling/Services: Deliver Weekday
Status: Shipment information sent to FedEx
Tracking number: 794218473875

To track the latest status of your shipment, click on the tracking number above,
or visit us at fedex.com.

From: Bill Beckett [mailto:bbeckett@dartaero.com]
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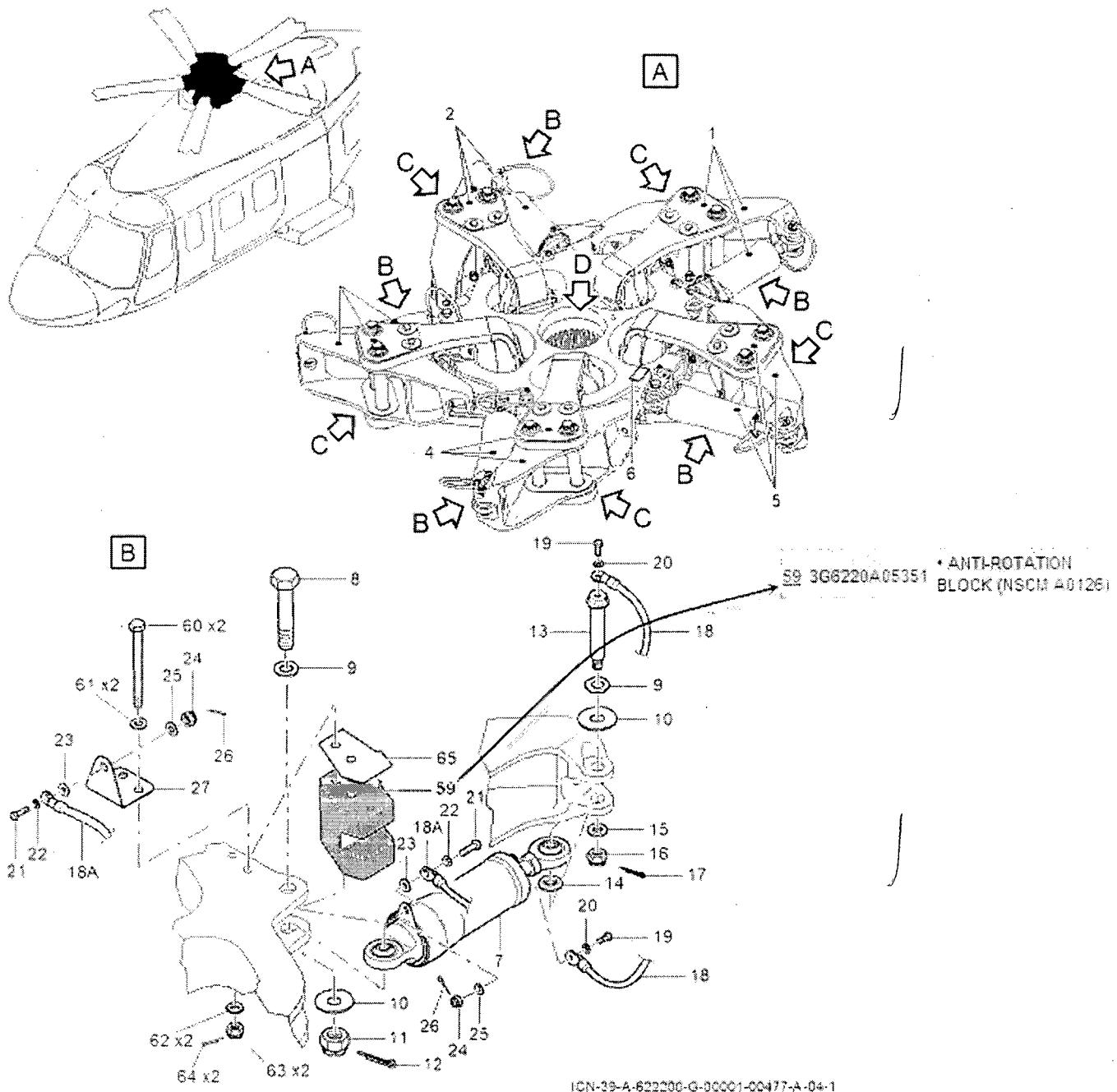
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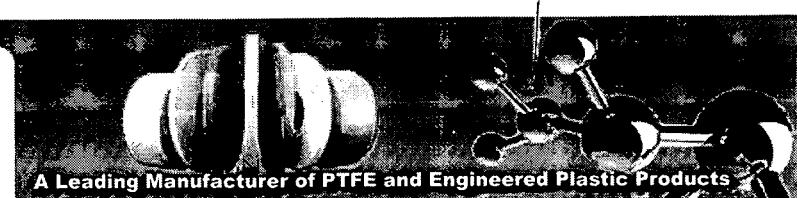


Regards,
Elvin



Plastomer Technologies

an EnPro Industries company



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PTFE Products

- Fiber
- Sealing Solutions
- Shapes
- Skived Sheet
- Tapes & Films
- Thread Sealant Tape

Plastic Services

- Component Cleaning
- Fabrication
- Machining
- Fluoropolymer Etching
- Molding

Product Specifications

Plastomer Technologies can manufacture to ASTM, MIL and other specific requirements.

SPECIFICATION (ASTM)	Tensile (min)	Elongation (min)	Specific Gravity	V/mil (min)	Shape	Notes
ASTM D 1710	See spec	N/A	N/A	N/A	Basic shapes, rods, and heavy wall tubing	N/A
ASTM D 3293	N/A	N/A	N/A	N/A	Molded sheet	Discontinued and replaced with ASTM D3294
ASTM D 3294-03, Type I, Grade1	4500	300	2.15-2.18	600	Molded sheets and shapes	Molded sheets only
ASTM D 3294-03, Type II, Grade1	3000	225	2.14-2.19	500	Molded sheets and shapes	Molded sheets only
ASTM D 3294-03, Type III, Grade1	2000	150	2.13-2.19	300	Molded sheets and shapes	Molded sheets only
ASTM D 3294-03, Type IV, Grade1	1300	75	2.13-2.20	N/A	Molded sheets and shapes	Molded sheets only
ASTM D 3294-03, Type I, Grade1	4800	325	2.14-2.18	1200	Molded sheets and shapes	Basic Shapes Only
ASTM D 3294-03, Type II, Grade1	3200	240	2.14-2.19	850	Molded sheets and shapes	Basic Shapes Only
ASTM D 3294-03, Type III, Grade1	1500	75	2.13-2.20	250	Molded sheets and shapes	Basic Shapes Only
ASTM D 3308-06, Type I, Grade1	4000	300	2.14-2.19	1000 20/t	Skived sheet	Skived Sheet
ASTM D 3308-06, Type II, Grade1	2800	200	2.14-2.19	840 20/t	Skived sheet	Skived Sheet
ASTM D 4745-08	See Spec	N/A	N/A	N/A	Filled PTFE molded and extruded parts	N/A

SPECIFICATION (AMS)	Tensile (min)	Elongation (min)	Specific Gravity	V/mil (min)	Shape	Notes
AMS 3651D	1500	75	2.10-2.20	350	Rods, tubes, sheets, moldings, extrusions and machined parts	Superceded by several AMS specifications
AMS 3652C	1500	100	2.14-2.20	n/a	Skived	N/A
AMS 3656F	N/A	N/A	N/A	N/A	Extruded	Radiographic inspection required on some types.
AMS 3660C, Type 1	3000	200	2.14-2.19	750	Molded rods, tubes, and shapes	N/A
AMS 3660C, Type 2	3000	200	2.14-2.19	N/A	N/A	N/A
AMC 3661C	4000	300	2.14-2.21	see spec	PTFE film - Premium	N/A
AMS 3667D, Type1	3000	200	2.14-2.19	500	Molded sheet	N/A
AMS 3667D, Type2	3000	200	2.14-2.19	N/A	Molded sheet	N/A
AMS 3669E, Type1	4000	300	2.14-2.19	600	N/A	N/A

AMS 3669E, Type2	4000	300	2.14-2.19	N/A	N/A	N/A
AMS 3678A	N/A	N/A	N/A	N/A	Moldings and extrusions unfilled, pigmented and filled components	N/A
AMS 3756A	2100/2700	270/240	2.20-2.24	N/A	25% Glass filled molded rods and cylinders	N/A

SPECIFICATION (MIL)	Tensile (min)	Elongation (min)	Specifc Gravity	V/mil (min)	Shape	Notes
MIL-P-22241B, Type 1, Grade A	4000	300	2.15-2.19	600	Molded Sheet	Superceded by ASTM D3294
MIL-P-22241B, Type 1, Grade B	3000	200	2.15-2.19	500	N/A	N/A
MIL-P-22241B, Type 2, Grade A	4000	300	2.15-2.19	see spec	Skived Sheet	Superceded by ASTM D3308
MIL-P-22241B, Type 2, Grade B	2800	200	2.15-2.19	see spec	N/A	N/A
MIL-P-19468	N/A	N/A	N/A	N/A	Molded and Extruded Rods	Superceded by ASTM D1710

SPECIFICATION	Tensile (min)	Elongation (min)	Specifc Gravity	V/mil (min)	Shape	Notes
8764	4000	300	2.14-2.20	600	N/A	N/A
8765	2800	270	2.14-2.20	300	N/A	N/A
8500	2500-3200	230-300	2.17-2.22	N/A	N/A	N/A
9405	1000-3000	50-250	2.15-2.22	N/A	N/A	N/A
9406	1000-3000	50-150	2.15-2.24	N/A	N/A	N/A

Testing is required to confirm all requirements unless waived by the customer prior to the time of order.

Note: While the utmost care has been taken in compiling this document, we assume no responsibility for errors.

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Headquarters: 10633 W Little York, Bldg 3, Suite 300, Houston, TX 77041 ([Map](#))

Phone: 713.983.4200 • info@plastomertech.com

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#1 in Technical and Customer Service

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PTFE & ENFLON® TYPICAL PHYSICAL PROPERTIES OF VIRGIN PTFE PRODUCTS

PTFE Material	Virgin	Virgin "Super" PTFE	Reprocessed	Virgin PTFE blended with:				
				Glass Fiber	Bronze	Graphite	Carbon	Glass, MoS2
Filler	None	None	None	Glass Fiber	Bronze	Graphite	Carbon	Glass, MoS2
Filler Content By Weight	0%	0%	0%	25%	40%	10%	10%	23%, 2%
PROPERTIES								
Specific Gravity	2.16	2.16	2.16	2.22	3.30	2.13	2.13	2.25
Tensile Strength @ Break (PSI)	3,000	4,500	1,500	2,500	2,300	2,700	2,800	2,500
Elongation @ Break	200%	450%	75%	50%	60%	60%	50%	50%
Shore D Hardness	54	54	56	63	65	57	62	64
Dielectric (kV/mil)	3.5	3.7	.8	-	-	-	-	-
Upon Request, physical testing with test reports available.								

COMMON SPECIFICATIONS FOR Teflon ® AND PTFE PRODUCTS

Specifications	Type Of Specification for PTFE and Teflon ®
*AMS 3651	PTFE RODS, TUBES, SHEETS, SHAPES (See AMS 3652 thru AMS 3669)
AMS 3652	PTFE FILM
AMS 3656	PTFE EXTRUSIONS
AMS 3658	PTFE EXTRUSIONS
AMS 3659	PTFE EXTRUSIONS
AMS 3660	PTFE MOLDINGS
AMS 3661	PTFE FILM
AMS 3662	PTFE FILM
AMS 3667	PTFE SHEET, MOLDED
AMS 3668	PTFE MOLDINGS
AMS 3669	PTFE SHEET, MOLDED
AMS 2491	SURFACE TREATMENT OF PTFE
*MIL-P-22241	PTFE SHEET & FILM (See ASTM D3293 & ASTM D3308)
*MIL-P-19468	PTFE RODS, MOLDED & EXTRUDED (See ASTM-D1710)
ASTM D1710	PTFE ROD
ASTM D3293	PTFE MOLDED SHEET

ASTM D3294	PTFE MOLDED SHEET OR SHAPES
ASTM D3308	PTFE SKIVED TAPE

* Note: These specifications have been deleted. See replacement specifications for current information.

Upon Request, physical testing with test reports available.

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PROVIDING QUALITY PTFE PRODUCTS INCLUDING PTFE SHEETS, PTFE FILM, PTFE TAPES, PTFE RODS AND PTFE TUBES SINCE 1956



AEROSPACE MATERIAL SPECIFICAT

166-03
98-12
008-03
S3667C

(R) Polytetrafluoroethylene (PTFE)
General Purpose Grade, AS Sintered

RATIONALE

AMS3667D results from a Five Year Review and update of this specification.

1. SCOPE

1.1 Form

This specification covers virgin, unfilled polytetrafluoroethylene (PTFE) in the form of sheet, manufactured by compression molding and sintering.

1.2 Application

This sheet has been used typically for mechanical parts such as insulation, seals, and bearings requiring chemical inertness up to 500 °F (260 °C), but usage is not limited to such applications.

1.3 Classification

Sheet covered by this specification is classified as follows:

Type 1 For parts, such as insulators and mounting posts, requiring chemical inertness and good mechanical and electrical properties up to 500 °F (260 °C). Testing of all specified properties is required.

Type 2 For parts, such as seals, backup rings, and bearings, requiring chemical inertness and good mechanical properties up to 500 °F (260 °C). Dielectric strength test (3.3.4) is not required.

1.3.1 Unless a specific type is ordered, Type 1 shall be supplied.

1.4 Safety - Hazardous Materials

While the materials, methods, applications, and processes described or referenced in this specification may involve the use of hazardous materials, this specification does not address the hazards which may be involved in such use. It is the sole responsibility of the user to ensure familiarity with the safe and proper use of any hazardous materials and to take necessary precautionary measures to ensure the health and safety of all personnel involved.

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Not for Resale, 12/14/2010 10:07:25 MST

2. APPLICABLE DOCUMENTS

The issue of the following documents in effect on the date of the purchase order forms a part of this specification to the extent specified herein. The supplier may work to a subsequent revision of a document unless a specific document issue is specified. When the referenced document has been cancelled and no superseding document has been specified, the last published issue of that document shall apply.

2.1 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org.

ASTM D 149	Dielectric Breakdown Voltage and Dielectric Strength of Solid Electrical Insulating Materials at Commercial Power Frequencies
ASTM D 792	Specific Gravity (Relative Density) and Density of Plastics by Displacement
ASTM D 4894	Polytetrafluoroethylene (PTFE) Granular Molding and Ram Extrusion Materials

3. TECHNICAL REQUIREMENTS

3.1 Material

Sheet shall be molded from virgin polytetrafluoroethylene (PTFE) powder in accordance with ASTM D 4894 without the addition of fillers, pigments, or adulterants and shall be sintered. "Virgin" shall mean having no previous heat or pressure history.

3.2 Color

Shall be predominantly white. Surface discoloration from sintering and/or annealing may vary from white to mottled gray or brown. Small gray, brown, or black spots are acceptable provided they have no detrimental effect on performance of the finished product.

3.3 Properties

The product shall conform to the requirements shown in Table 1; tests shall be performed on production sheet and in accordance with specified test methods.

TABLE 1 - PROPERTIES

Paragraph	Property	Requirement	Test Method
3.3.1	Tensile Strength at 73 °F ± 2 (23 °C ± 1), minimum	3000 psi (20.7 MPa)	4.3.1
3.3.2	Elongation at 73 °F ± 2 (23 °C ± 1), minimum	200%	4.3.1
3.3.3	Specific Gravity at 73 °F (23 °C)	2.14 to 2.19	ASTM D 792 Add two drops of wetting agent to the water
3.3.4	Dielectric Strength, applicable only to Type 1 sheet Short Time Test, minimum	500 Volts per mil (19.7 kV/mm)	4.3.2

3.4 Quality

Sheet, as received by purchaser, shall be uniform in quality and condition, smooth, and free from foreign materials and from imperfections detrimental to usage of the sheet.

3.5 Tolerances

Unless otherwise agreed between vendor and purchaser, dimensional tolerances of moldings shall be in accordance with Table 2, determined at 73 to 86 °F (23 to 30 °C):

3.5.1 Thickness

Shall be as shown in Table 2.

TABLE 2 - THICKNESS TOLERANCES

Nominal Thickness (T) Inch (Millimeter)		Tolerance Inch (Millimeter) Plus	Tolerance Inch (Millimeter) Minus
0.0312 (0.792) to 0.0938 (2.382)	incl	0.015 (0.38)	0.005 (0.13)
Over 0.0938 (2.382) to 0.125 (3.180)	incl	0.016 (0.41)	0.008 (0.20)
Over 0.125 (3.180) to 0.1563 (3.970)	incl	0.018 (0.46)	0.009 (0.23)
Over 0.1563 (3.970) to 0.1875 (4.762)	incl	0.022 (0.56)	0.011 (0.28)
Over 0.1875 (4.762) to 0.250 (6.350)	incl	0.030 (0.76)	0.015 (0.38)
Over 0.250 (6.350) to 0.375 (9.520)	incl	0.038 (0.96)	0.019 (0.48)
Over 0.375 (9.520) to 0.500 (12.70)	incl	0.046 (1.17)	0.022 (0.56)
Over 0.500 (12.70) to 0.625 (15.88)	incl	0.054 (1.37)	0.027 (0.68)
Over 0.625 (15.88) to 0.750 (19.05)	incl	0.070 (1.78)	0.035 (0.89)
Over 0.750 (19.05) to 1.000 (25.40)	incl	0.087 (2.21)	0.043 (1.09)
Over 1.000 (25.40) to 1.250 (31.75)	incl	0.102 (2.59)	0.051 (1.30)
Over 1.250 (31.75) to 1.500 (38.10)	incl	0.118 (3.00)	0.059 (1.50)
Over 1.500 (38.10) to 1.750 (44.45)	incl	0.134 (3.40)	0.067 (1.70)
Over 1.750 (44.45) to 2.000 (50.80)	incl	0.150 (3.81)	0.075 (1.90)
Over 2.000 (50.80)		0.10T	0.05T

3.5.2 Width and Length

Shall not vary more than +0.25 inch (+6.35 mm), -0.00 inch.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for Inspection

The manufacturer of sheet shall be responsible for the performance of all required tests. Purchaser reserves the right to sample and to perform any testing deemed necessary to ensure that the sheet conforms to AMS requirements.

4.2 Classification of Tests

4.2.1 Acceptance Tests

Each lot of product shall conform to all technical requirements and shall be performed prior to shipment of sheet to a purchaser.

4.2.1.1 Sampling and Testing

Sufficient sheet(s) shall be taken at random from each lot to perform all required tests. The number of determinations for each requirement shall be as specified in the applicable test procedure or, if not specified therein, not less than three.

4.2.1.2 A lot shall be all sheet of the same size made from the same batch of compound in one production run and presented for vendor's inspection at one time.

4.2.1.3 When a statistical sampling plan has been agreed upon by purchaser and vendor, sampling shall be in accordance with such plan and the report of 4.4 shall state that such plan was used.

4.3 Test Methods

4.3.1 Tensile Strength and Elongation

Shall be determined in accordance with ASTM D 4894. Specimens shall be prepared from production sheet(s) of sufficient size, or if production sheet(s) will not yield suitable samples, from a test or other suitable production sheet from the same resin lot. All results shall be reported.

4.3.2 Dielectric Strength

Shall be determined in accordance with ASTM D 149, on specimens 0.060 inch \pm 0.010 (1.52 mm \pm 0.25) thick. Tests shall be conducted under oil using electrodes of corrosion-resistant steel, nominally 0.25 inch (6.35 mm) in diameter with 0.031 inch (0.79 mm) radius at the edges.

4.4 Reports

The vendor of sheet shall furnish with each shipment a report showing the results of tests to determine conformance to the technical requirements. This report shall include the purchase order number, lot number, AMS3667D, type, vendor's compound number, size, and quantity.

4.5 Resampling and Retesting

If any specimen used in the above tests fails to meet the specified requirements, disposition of the sheet may be based on the results of testing three additional specimens for each original nonconforming specimen. Failure of any retest specimen to meet the specified requirements shall be cause for rejection of the sheet represented. Results of all tests shall be reported.

5. PREPARATION FOR DELIVERY

5.1 Packaging and Identification

5.1.1 Packaging of sheet shall be accomplished to ensure that, the sheet, during shipment and storage, will not be permanently distorted and will be protected against damage from exposure to weather or any other normal hazard.

5.1.1.1 A lot of sheet may be packaged in small quantities and delivered under the basic lot approval provided lot identification is maintained.

5.1.2 Each package of sheet shall be permanently and legibly marked with not less than the following information:

POLYTETRAFLUOROETHYLENE SHEET, MOLDED

General Purpose Grade, As Sintered

AMS3667D

TYPE _____

SIZE _____

LOT NUMBER _____

PURCHASE ORDER NUMBER _____

QUANTITY _____

MANUFACTURER'S IDENTIFICATION _____

- 5.1.3 Packages of sheet shall be prepared for shipment in accordance with commercial practice and in compliance with applicable rules and regulations pertaining to the handling, packaging, and transportation of the sheet to ensure acceptance and safe delivery.

6. ACKNOWLEDGMENT

A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.

7. REJECTIONS

Sheet not conforming to this specification, or to modifications authorized by purchaser, will be subject to rejection.

8. NOTES

- 8.1 A change bar (|) located in the left margin is for the convenience of the user in locating areas where technical revisions, not editorial changes, have been made to the previous issue of this document. An (R) symbol to the left of the document title indicates a complete revision of the document, including technical revisions. Change bars and (R) are not used in original publications, nor in documents that contain editorial changes only.
- 8.2 Dimensions and properties in inch/pound units and the Fahrenheit temperatures are primary; dimensions and properties in SI units and the Celsius temperatures are shown as the approximate equivalents of the primary units and are presented only for information.
- 8.3 Purchase documents should specify not less than the following:

AMS3667D

Type of sheet desired

Size of sheet desired

Quantity of sheet desired.

Bill Beckett

From: Domingue, Elvin <edomingue@erahelicopters.com>
Sent: December 14, 2010 1:14 PM
To: Bill Beckett
Cc: Vaughn, Chuck
Subject: AW139 Anti-Rotation Block
Attachments: DWG-3G6220A05351_1_A[1].pdf; PL-3G6220A05351.pdf; AMS3667 Specification.pdf

Bill,

Hope all is going well for you all. Please see attached information regarding the blocks. Would like to get 100 ea of these made, need 10 ea quickly (within a week) if possible. I am also adding the MM Ref material and breakdown. Would like to know pricing and availability when you get a chance. Let us know if you have any questions.

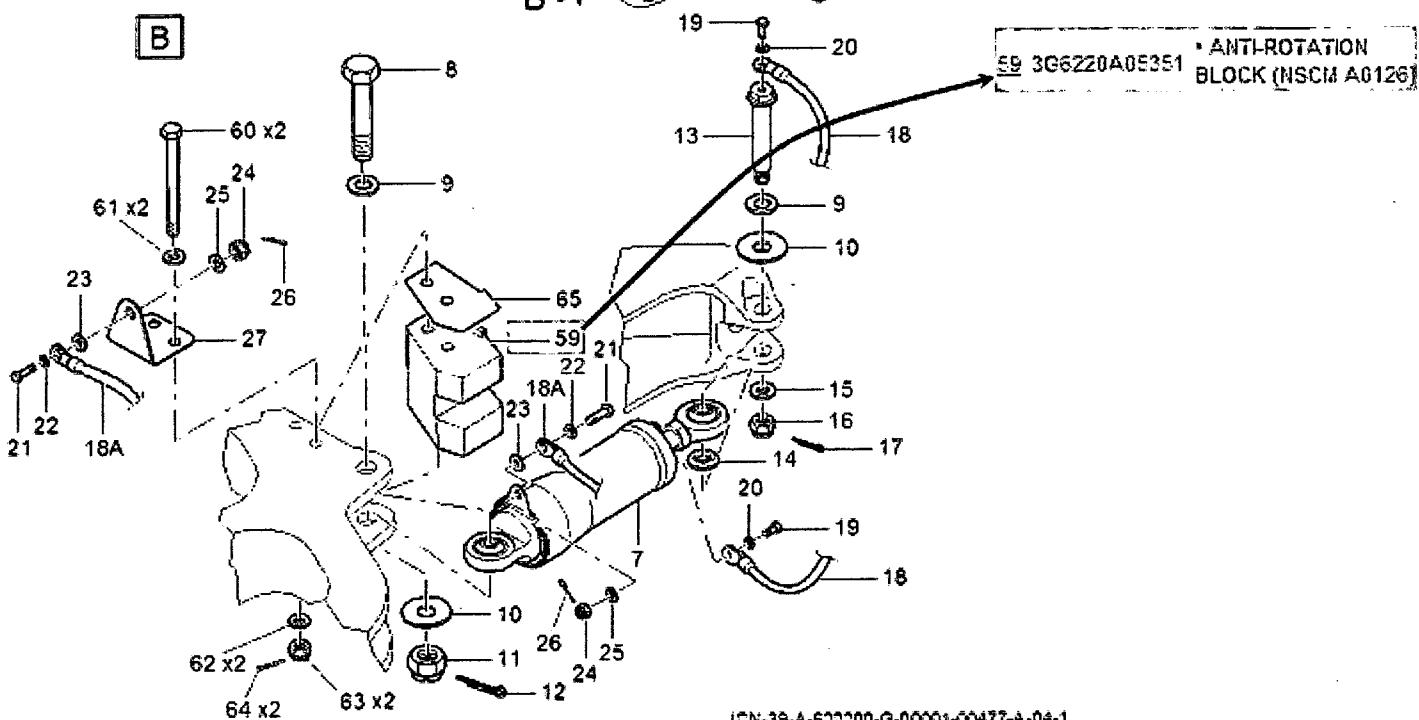
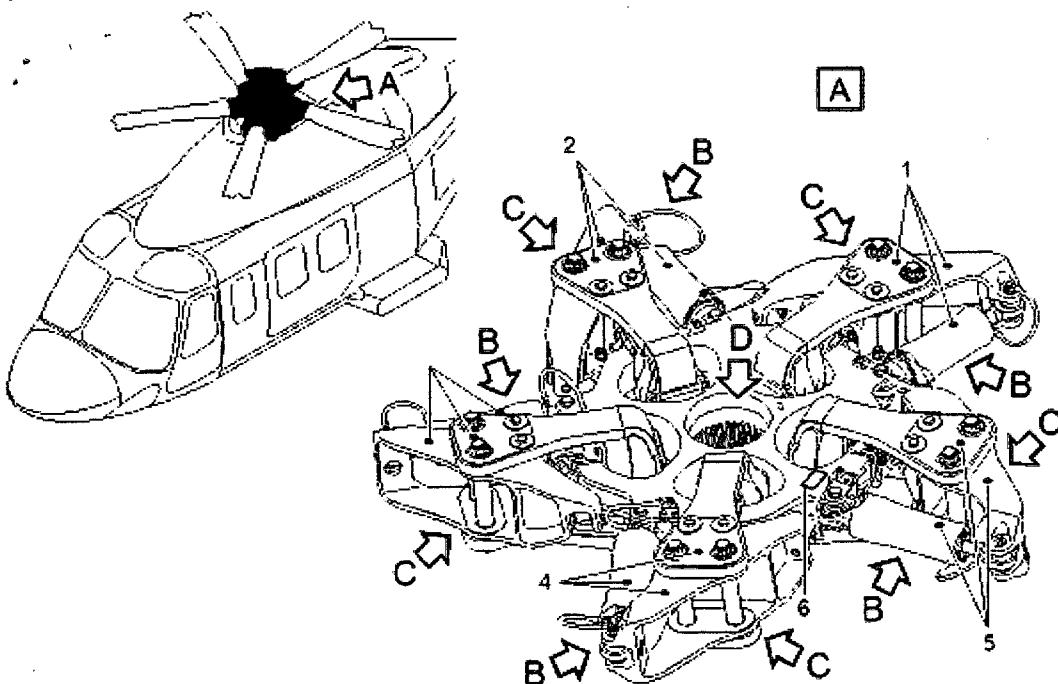
Anti-rotation blocks

The five anti-rotation blocks are installed on the hub.

Each block is attached to the hub with two bolts, four washers and two nuts.

A peelable shim is installed on the top side of the block between the hub and the block.

The anti-rotation blocks are made of teflon. They prevent the rotation of the lag damper on the longitudinal axis.



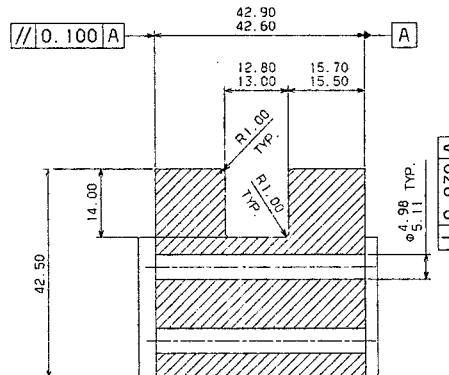
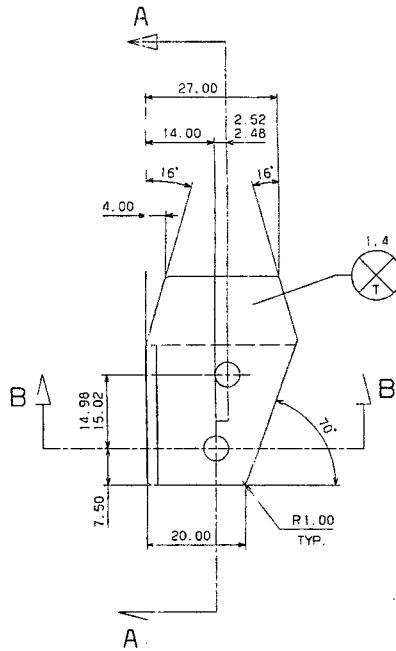
ICN-39-A-622200-G-00001-00477-A-04-1

Regards,
Elvin

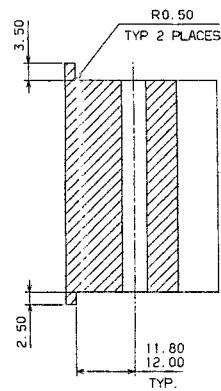
INTERCHANGEABLE SPARE

COPIA CONFORME A ORIGINALE.
PER DATA E FIRME AUTOGRAFE VEDERE S/M ULTIMA REV.
COPY CONFORM TO ORIGINAL.
SEE S/M LAST REV. FOR DATE AND OWN HAND SIGNATURE.

ORG. NO.	3G6220A05351	SHT F01 OF F01	
RECORD OF DRAWING CHANGES			
ISS	SM NO.	DRAWN	ISS. DATE
A	SM139G00891	EMTB	23/09/1993



SECTION A-A



SCALE 1 : 1

SECTION B-B

COPY OF AN ISSUED DRAWING

		AGUSTA		FOR PART LIST AND NOTES SEE D.B.T.	
		CASCINA COSTA DI SBURATE, V.LE - ITALY - CAIS CODE A0126			
SCALE VALID FOR MASTER DRG ONLY		2 : 1	FINISH SPEC. 100-05-024	APPROVALS	DATE
			DIMENSIONS AND GENERAL NOTES TOLERANCES VALUES IN MILLIMETERS		
			X : 2 X : 1 X : 0,7 X : 0,25		
		CATIA DRAWING	UNLESS OTHERWISE STATED THESE DIMENSIONS ARE IN MILLIMETERS		
		- AB139 -	NTA6109 GENERAL PROCEDURES NTA6110 DRAWING CONVENTION NTA6119 RIVET SYMBOLS NTA6229 SURFACE FINISH NTA6232 PART MARKING		
RE-CAPACITY	REF NUMBER	REV/25/08	NTA6239 GRADUATED TOLERANCES	THIRD ANGLE PROJECTION	DRG. N° 3G6220A05351
PRINTABILITY	PRINTING	PRINTING	NTA6589 LOCK-IN OF FASTENERS	SHT F01 OF F01	ISS. A
VRC	PHASES LAB SERVICE	15/12/07	NTA6591 FINISH CODES	MONTI	04/01/01
			NTA6601-14 CARGO OF PARTS		

SABIC Polymershapes

سabic
sabic

ORDER CONFIRMATION

ORDER	094426
Date	17.12.10
GST Registration #	856372750RT0001
Taken By:	caldwellj

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Canada

Ship To

DART AEROSPACE LTD

1270 ABERDEEN STREET
HAWKESBURY ON K6A 1K7
Canada

A/C

Customer DARAER	Ship Via T S T	TAX LIC 1 CHARGE GST	TAX LIC 2 6112-5207	A/R Terms NET 30 DAYS	F. O. B.	Page 1
P. O. # 13158	Expiry Date 16.12.12	Freight Terms COLLECT	Sales Representative 93	Sched Ship 30.12.10	Dept.	
Product	Quantity	SKU	Description	Price	Per	Extension
94008151	7	EA	X1100 VIRGIN TEFLON SHEET 2.00 X 2.00 X 24	224.61	EA	1572.27
0000005	1	EA	THANK YOU FOR SELECTING SABIC POLYMERSHAPES	.00	EA	0.00
			* ORDER CONFIRMATION * Total			1572.27
						=====
			This is to verify receipt of the above-referenced order. Upon acceptance of the order, SABIC Polymershapes will fill the order on its standard terms and conditions of sale unless, prior to shipment of all or part of this order, you provide written objections to such standard terms and conditions of sale or unless other terms have been agreed to in writing signed by SABIC Polymershapes.			

31.12.20